

Claims

- [1] 1. A method for manufacturing a resin bonding type diamond tool, the method comprising the steps of:
placing a tool body in a molding die;
loading a number of granular diamond pellets into a segment space formed between the molding die and the tool body, the diamond pellets being formed by sintering the mixture of diamond powder and metal powder; and
injecting resin into the segment space through the die or tool body so as to bind the diamond pellets with resin.
- [2] 2. The method as claimed in claim 1, wherein the resin is injected through a resin inlet formed in the tool body.
- [3] 3. The method as claimed in claim 1, wherein the diamond pellet has a size of 3 to 5 mm.
- [4] 4. The method as claimed in claim 1, further comprising the steps of:
forming a plurality of binding recesses in the tool body; and
filling the resin into the binding recesses.
- [5] 5. The method as claimed in claim 1, wherein the tool body is made of the same material as the resin.
- [6] 6. The method as claimed in claim 1, further comprising the step of:
brazing the diamond pellets with at least one material selected from the group consisting of copper, silver solder, lead, brass solder and so on before the step of injecting resin so as to increase a binding force of the diamond pellets.
- [7] 7. The method as claimed in claim 6, further comprising the step of:
coating the diamond pellets with at least one material selected from the group consisting of Ni, Ti, Cu and so on having a fusion point relatively higher than that of the selected brazing material before the step of brazing the diamond pellets so as to prevent the brazing material from being absorbed into the diamond pellets.
- [8] 8. A method for manufacturing a resin bonding type diamond tool, the method comprising the steps of:
placing a tool body in a molding die;
loading a number of granular diamond pellets and resin powder into a segment space formed between the die and the tool body, the diamond pellets being formed by sintering the mixture of diamond powder and metal powder; and

sintering the mixture of the diamond pellets and the resin powder so as to bind the diamond pellets with the resin.

- [9] 9. The method as claimed in claim 8, wherein the diamond pellet has a size of 3 to 5 mm.
- [10] 10. The method as claimed in claim 8, further comprising the steps of:
forming a plurality of binding recesses in the tool body; and
filling the resin into the binding recesses.
- [11] 11. The method as claimed in claim 8, wherein the tool body is made of the same material as the resin.
- [12] 12. A resin bonding type diamond tool, comprising:
a tool body 12 made of metal or resin; and
a diamond tip 14 attached to the tool body 12, the
diamond having resin 16 and a number of granular diamond pellets 18 contained in the resin 16, the diamond pellets 18 each containing a sintered mixture of diamond powder 18a and metal powder 18b therein.
- [13] 13. The resin bonding type diamond tool as claimed in claim 12, wherein the diamond tip 14 has a binding projection 16a for increasing a binding force to the tool body 12.
- [14] 14. The resin bonding type diamond tool as claimed in claim 12, wherein the tool body 12 is made of the same material as the resin 16 of the diamond tip 14.
- [15] 15. The resin bonding type diamond tool as claimed in claim 12, wherein the tool body 12 has at least one resin inlet 13.
- [16] 16. The resin bonding type diamond tool as claimed in claim 12, wherein the diamond pellets 18 are brazed and bound with at least one material selected from the group consisting of copper, silver solder, lead, brass solder and so on so as to increase a binding force.
- [17] 17. The resin bonding type diamond tool as claimed in claim 12, wherein the diamond pellets 18 have a metal layer coated on their surfaces so as to prevent the brazing material from being absorbed into the diamond pellets, the metal layer being made of at least one material selected from the group consisting of Ni, Ti, Cu and so on having a fusion point relatively higher than that of the brazing material.